Station Circular 46 June, 1923

Oregon Agricultural College

Experiment Station

JAMES T. JARDINE, Director
CORVALLIS

Hungarian Vetch in Oregon

By
H. A. SCHOTH
Assistant Agronomist, Forage Crop Investigations, United States Department of Agriculture, Cooperating with the Oregon Experiment Station

Hungarian vetch, after having been grown at the Oregon Experiment Station for the past fifteen years and by cooperating farmers for the past four years, is undoubtedly destined to become a very important annual leguminous farm crop for this state, especially the western part.

When a crop starting with one planting of one-half acre in 1920 increases to three acres in 1921, thirty acres in 1922, and seven hundred acres in 1923, with prospects of ten thousand acres being sown in 1924, there can be little question that Hungarian vetch is destined to be of increasing importance.

Hungarian vetch was introduced into the United States from Hungary by the United States Department of Agriculture. It has been grown at the Oregon Experiment Station since 1909. The original plantings were for experimental purposes. Its value as a farm crop was established in 1918 and 1919 after thorough trials experimentally, and since that time it has been increased as rapidly as possible.

Description. Hungarian vetch is a fine-stemmed annual, making a semi-erect growth 2½ to 4 feet in height, and is somewhat hairy over all. Flowers are brownish white in color and borne in groups of from two to eight. The pods, usually two to the group, bear four to eight irregular-shaped seeds, mottled brown in color, with streaks radiating from the scar, which is set at an angle. Seeds are about one-half the size of common or spring vetch seeds.

Value of the Crop. This vetch has a number of qualifications which make it an outstanding crop for many Oregon conditions. Being a legume it has the ability of increasing the amount of nitrogen in the soil. It is an excellent forage crop, producing hay, silage, soilage, and pasture equal in palatability and nutritive value to that produced by any other annual legume.

As a Seed Producer. It is a good seed producer, practically non-shattering, and usually produces about 25 percent more seed per acre than common vetch.

Winter-hardiness. Because of its winter hardiness, it is coming into prominence as a cover and green manure crop, especially in orchards. It has not winter-killed with temperatures as low as 10° above zero without any protection, while other vetches were severely injured by such temperatures.

Adaptability on Poor Lands. The crop is as easy to grow as any other vetch crop. Any ordinary farming methods are successful in producing a crop of this vetch. It has the ability to grow under more adverse soil conditions than many other crops. Lands with poor drainage and lands that are heavy, sour, and white will often produce crops of Hungarian vetch while other crops fail. Land that is subject to having water stand on it for long periods is not any better for this vetch than any other variety because the plants will drown out or heave out during freezing weather.

Aphis Resistance. Its aphis resistance is probably the largest single factor toward making it a generally grown crop in Western Oregon. During years when aphids practically destroyed many other farm crops this vetch was injured comparatively little and produced practically normal crops of forage and seed.

Bee Pasture. As a bee pasture it has the reputation of supplying nectar in large quantities for a longer period than any other annual cultivated plant. The flow is generally from early April (1 to 10) to July 1. The early flow is secured from glands on the stipules at the base of the leaves. After blooming season begins both the stipule glands and the flowers produce nectar. To the beekeeper this constant supply of nectar over a long period is exceedingly important.

The straw is of a bright green color and is quite readily consumed by livestock and can be used as winter roughage for sheep, cattle, and horses.

Hungarian vetch is seldom attacked by diseases or insect pests. At no time since the crop has been grown here has any loss occurred due to disease or insects.

Time of Sowing. Hungarian vetch is most successful when sown in the fall. Early fall sowings are more successful than later ones but on land in good condition and free enough from surface water so that the seeds will not rot, good crops have been produced from plantings as late as December 10.

Spring sowings are not successful except along the coast, as the plants do not make enough growth before the warm, dry weather comes on and checks them. This vetch, like other vetches, grows best during a long, cool, moist growing season. In coast vetch-growing sections plantings made in February or early March produce good crops.

Rate of Sowing. Experimental work has shown that the most crop for the amount of seed sown can be obtained when this vetch is seeded at 80 pounds per acre alone, or at 60 pounds of vetch and 40 pounds of winter oats when sown in combination. For general forage production the combination is usually used. This makes a well balanced legume and grain combination and makes excellent hay, silage, or soilage. For

green manure or cover crop purposes 30 to 40 pounds of vetch in combination with either 40 pounds of winter oats or 40 to 50 pounds of winter rye, barley, or wheat are used.

For seed production the vetch is usually sown alone. It usually produces more seed than when sown in combination. The seed harvest is cheaper and it is easier to clean.

Method of Sowing. Sowing is preferably done with a drill, which gives an evener distribution and covers the seed better. This gives an evener germination and has a tendency to cause deeper rooting.

Broadcasting is as successful with this vetch as with any other variety. Where the land is in good cultural condition and is given a thorough cultivation after sowing, this method is quite successful.

"Disking in" the seed is also practiced. This is most successful when following a cultivated or spring grain crop. When done following a fall-sown grain crop, it often results in very uneven stands.

Land that has been in cultivated crops or spring-sown grain crops usually requires only a disking before sowing. Land that has been in fall-sown crops should be plowed and worked down into a good seed-bed before sowing. On land that has grown a vetch crop the year before and is quite mellow, a thorough double disking before sowing will often put it into fair shape for vetch.

Inoculation. Hungarian vetch requires inoculation to make a successful growth. Land that has within the past two years grown a successful crop of common vetch will ordinarily grow a successful crop of Hungarian vetch, so far as inoculation is concerned. If the seed is to be sown on land which has never grown any vetch it is advisable to inoculate either with soil or with common vetch culture. Apparently the same bacteria are found on the roots of the two varieties.

Fertilizers. This vetch responds to land-plaster, and an application of 75 pounds per acre pays by materially increasing the production of forage and seed. On land high in fertility and growing a crop to be used for seed production, it is often not advisable to apply land-plaster because it will probably cause a very heavy growth of forage which is usually detrimental to heavy seed production.

Harvesting. Harvesting Hungarian vetch for hay and silage when sown alone is done at the time the lower pods are two-thirds mature. Where sown in combination with a grain the grain is usually in the dough stage when the lower vetch pods are two-thirds mature and both are in the proper stage for producing high quality forage.

Harvesting for seed is done when practically all the pods on the plants are mature. The cut material should be shocked soon after cutting. This vetch shatters very little. A swather and pea-lifter attachments on the mowing machine are very helpful in handling the crop for seed.

The material should be thoroughly dry before threshing or unthreshed pods may be carried over in the straw. The seeds do not crack much when the machine is properly adjusted, the amount of cracking depending largely on the management of the machine.

Cleaning the Seed. Vetch seed when grown alone is easily cleaned in any of the ordinary fanning and screening mills. When grown in combination with small grains the cleaning is more difficult, especially

if there is a considerable percentage of wheat or barley. Oats are usually separable by the screened fanning mill. Wheat and barley can be separated by these machines especially if there is a series of three or more screens. Where there are only two screens as in most of the farm types the separation is often unsatisfactory. The best and surest machine for making a thorough separation is the spiral cleaner. This machine works by gravity and its capacity is low, so while it is being used the machine should be kept busy all the time.

Yield of the Crop. Under ordinary conditions, it is reasonable to expect 2.5 tons of hay, 12 tons of silage, 6 to 12 tons of soilage, depending on the stage of cutting and 1500 pounds of clean seed per acre.

What Growers Think of Hungarian Vetch. In the fall of 1922, Hungarian vetch seed was distributed to over 100 farmers in Western Oregon and to several experiment stations in this and other states.

Personal inspections have been made of the majority of these trials. Of all the inspections made only one failure was found. This was on an abandoned farm to which livestock had free access. Many trials were on land of the poorest agricultural types, the object being to test the vetch thoroughly under the most unfavorable conditions. In some cases there was loss on very wet land due to the plants being heaved out. There was in many cases an effort to make a small amount of seed cover twice the proper amount of land. This resulted in thin stands, but as it is intended for seed production the amount of seed produced will probably be larger than if sown on a smaller area and will pay.

Practically every grower visited intends to use his whole crop for seed and sow an increased acreage in the fall. This shows the confidence of the growers in the crop.

In certain sections the aphids are damaging the common vetch considerably. The Hungarian vetch is comparatively free from these insects and where mixed in the field, the common vetch plants in the Hungarian vetch fields are being destroyed.

In sections where the winter was very severe Hungarian vetch survived while other varieties were winter-killed from 50 to 100 percent. This is an indication of its winter hardiness.

Over 95 percent of the trials with Hungarian vetch during the first year are successful. This is an excellent record considering that it is a new crop, the winter very severe for this section, the adverse conditions under which many seedings were made, and the heavy aphis attacks on other vetches.

As one Willamette Valley farmer says: "Hungarian vetch is worth more to Oregon every year than the whole Experiment Station has cost."